DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 99.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-029977
Date Inspected: 05-Sep-2013

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Steward Machine Co.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Birmingham, AL

CWI Name:	Fred Hudson (Cert.# 01061501)			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☐ No	☑ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: E2 Shear Key Anchorages

Summary of Items Observed:

Quality Assurance Inspector (QAI) Fritz Belford was present on the date and times noted above in order to observe the fabrication and Quality Control (QC) functions performed by Steward Machine Company for the E2 Shear Key Anchorages for the SFOBB project. Material Test Reports (MTRs) for all materials used have been reviewed and approved by others at the XKT shop in Vallejo California prior to shipping to Steward Machine Company. The following items were observed:

STEWARD MACHINE - PLANT 1:
The QA performed a walkthrough at the shop to verify plates on site and to observe Steward Machine personnel at work machining and welding. Work performed at the Steward Machine shop as noted below:

Assembly S10B as noted above includes plates S10B-d1, S10B-c1, S10B-b1, S10B-a1, S10B-b2, S10B-a2. Assembly of the S10C assembly (S10C-d1, S10C-c1, S10C-b1, S10C-a1, S10C-b2 & S10C-a2) began today with the sand blasting of all the faying surfaces to SP10 prior to assembly. After blasting all the faying surface profiles were then observed confirmed and accepted by the NACE QC inspector Chris Shifflett. Prior to mating the plates, the grooves of the S10C-b1 & b2 plates were then caulked with the Loctite Superflex Blue RTV Silicone before mating them to the S10C-a1 & a2 plates. After the plates were tacked welded they were then lowered into the Upper Saddle Welding Jig for fit up and welding. The root pass will be welded on the next shift with Magnetic Particle Testing of the root pass soon after completion.

Welder Jeff Hennington #476:
The welder was observed tack welding the S10C Upper Saddle Assembly (Plates a2 thru b1) utilizing Welding

Procedure Specification (WPS) P2-W126-B for Flux Core Arc Welding(FCAW-G). Welding parameters were adjusted and monitored by Certified Welding Inspector (CWI) Fred Hudson who was onsite with the WPS as required by contract documents. The welding parameters will be measured by the QAI on the following shift when the root pass instead of tack welding, allows measurements of volts and amps.

Plate Milling:
CNC Machine #176 milling plate S4C-g4. (Milling inside radius)
CNC Machine #211 milling plate S4C-d4 (Milling inside radius troughs)
CNC Machine #225 milling plate S3C-a3. (Milling inside radius troughs)
CNC Machine #231 milling the S10B assembly. (Milling shear key side)
CNC Machine #240 milling plate S3C-c3. (Milling ends)
CNC Machine #245 milling plate S3B-g3. (Milling outside radius)

The following plates were noted staged throughout the shop in various stages of processing.
Bay 1 – Plates:
S4B-h4. Formed, stressed relieved and partially machined.
S3B-h3. Formed, stressed relieved and partially machined.
S4B-g4. Formed, stressed relieved and partially machined.

Bay 2 – Plates:
S4C-b4. Formed, stressed relieved and partially machined.
S3C-h3. Formed, stressed relieved and partially machined.
S3C-g3. Formed, stressed relieved and partially machined.
S4C-h4. Formed, stressed relieved and partially machined.
S4B-c4. Formed, stressed relieved and partially machined.

Bay 3 – Plates:
S3B-e3. Formed, stressed relieved and partially machined.
S4B-e4. Formed, stressed relieved and partially machined.
S4C-e4. Formed, stressed relieved and partially machined.
S3C-e3. Formed, stressed relieved and partially machined.

Bay 4 & 5– Plates:
S10C-d1. Formed, stressed relieved and partially machined.
S10C-c1. Formed, stressed relieved and partially machined.
S10C-a1. Formed, stressed relieved and partially machined.
S10C-b1. Formed, stressed relieved and partially machined.
S10C-a2. Formed, stressed relieved and partially machined.
S10C-b2. Formed, stressed relieved and partially machined.
S3B-f3. Formed, stressed relieved and partially machined.
S3C-f3. Formed, stressed relieved and partially machined.
S4B-f4. Formed, stressed relieved and partially machined.
S4C-f4. Formed, stressed relieved and partially machined.
S3B-b3. Formed, stressed relieved and partially machined.

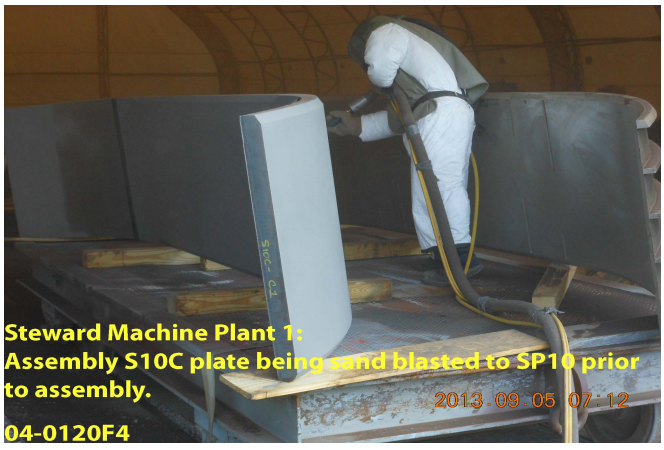
S4C-c4. Formed, stressed relieved and partially machined.
S4B-d4. Formed, stressed relieved and partially machined.
S4C-a4. Formed, stressed relieved and partially machined.
S3B-a3. Formed, stressed relieved and partially machined.
S3C-b3. Formed, stressed relieved and partially machined.
S4B-a4. Formed, stressed relieved and partially machined.
S4B-b4. Formed, stressed relieved and partially machined.
S3C-d3. Formed, stressed relieved and partially machined.
S3B-c3. Formed, stressed relieved and partially machined.

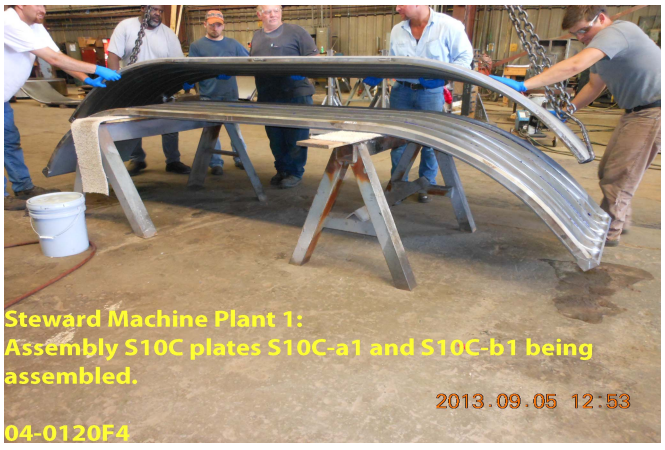
STEWARD MACHINE - PLANT 2:
No welding or cutting on contract items at the plant on this day.

HARDIE TYNES:
The QA performed a walkthrough at the shop to verify plates on site and to observe Hardie Tynes personnel at work machining the plates. During the walk through it was noted that Hardie Tynes has completed milling plate S3b-d3 and that the plate was released from it milling jig and was staged on the floor. The anticipated work on the plate is Magnetic Particle Testing (MPT) and dimensional verification to be performed on the morning shift by Hardie Tynes QC Inspector and witnessed (QA) by Steward Machine with the CALTRANS representative (QAI) to be onsite during the inspection.

GREEN TAG RELEASES.
None this day.

NON-DESTRUCTIVE TESTING (NDT).
None this day.





Summary of Conversations:
The QA Inspector noted the welder was tack welding out of position (2G instead 1G as qualified) and informed the CWI of his observations. The Certified Welding Inspector Fred Hudson (Cert.# 01061501) then informed the QA Inspector that he was aware of the issue and that they will remove the tack welds during the welding of the root pass by grinding, as was previously done on the S10B assembly.

WELDING INSPECTION REPORT

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Gary Thomas (916) 764 - 6027, who represents the Office of Structural Materials for your project.

Inspected By:	Belford,Fritz	Quality Assurance Inspector
Reviewed By:	Foerder,Mike	QA Reviewer